



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/369,386	08/06/1999	MOTOTAKA TANEYA	914-101	6727

23117 7590 04/18/2006

NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER

PIZIALI, JEFFREY J

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/369,386

Applicant(s)

TANEYA ET AL.

Examiner

Jeff Piziali

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 March 2006 and 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-10, 14, 16, 18, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-10, 14, 16, 18, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed (on 20 March 2006) in this application after final rejection (mailed 4 October 2005). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' "*Amendment After Final*" submission filed on 6 February 2006 has been entered.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 2629

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-10, 14, 16, 18, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Takayama et al* (US 5,982,345 A -- referred to hereafter as *Takayama*) in view of the instant application's own '*Background of the Invention*.' [Note: Claim order has been rearranged numerically in this Office Action to better correspond to claim dependencies.]

Regarding independent claim 10, Takayama discloses an organic EL emission device (see Column 2, Lines 54-65), comprising: first [Fig. 2B; 2] and second [Fig. 2B; E] electrode layers, at least one [Fig. 2B; 2] of which is transparent; a light emission layer [Fig. 2B; I] for EL emission sandwiched between the first [Fig. 2B; 2] and second [Fig. 2B; E] electrode layers for together supplying prescribed electric fields to the light emission layer (see Column 3, Line 61 - Column 4, Line 19); and voltage application means [Fig. 1; S] for applying a voltage [Fig. 1; V] between an electrode [Fig. 1; Row 1] included in the first electrode layer [Fig. 2B; 2] and an electrode [Fig. 1; Column 1] included in the second electrode layer [Fig. 2B; E] and for injecting electric current [Fig. 1; via current restriction resistor R] into the light emission layer [Fig. 2B; I] (see Column 4, Lines 37-44), wherein at least the first electrode layer [Fig. 2B; 2] includes a plurality of electrodes arranged with spatial periodicity (see Fig. 1's matrix arrangement), the plurality of electrodes included in the first electrode layer [Fig. 2B; 2] together with adjacent

Art Unit: 2629

regions in the second electrode layer [Fig. 2B; E] including at least one electrode form a plurality of electrode pair regions [Figs. 1 & 2B;  $e_1$  and  $e_2$ ] arranged with spatial periodicity (see Fig. 1's matrix arrangement), the voltage application means [Fig. 1; S] applies the prescribed electric fields in a manner such that the prescribed electric fields are always different from each other in polarity in adjacent electrode pair regions [Figs. 1 & 2B;  $e_1$  and  $e_2$ ] (see Column 7, Lines 5-12 -- wherein each adjacent pair of EL elements  $e_1$  and  $e_2$  are coupled with opposing polarities) and vary in a time-dependent manner [Table 4;  $t_1$ - $t_4$ ] (see Column 8, Lines 10-25).

Takayama teaches the EL elements [Fig. 2B;  $e_1$  and  $e_2$ ] being formed of a "double-hetero structure," in which the light emission layer [Fig. 2B; I] of an organic compound is sandwiched between a hole transporting layer [Fig. 2B; P] and an electron transporting layer [Fig. 2B; N]. Takayama does not explicitly disclose an alternate "two-layer structure" for eliminating the electron transporting layer [Fig. 2B; N], so that the organic layer [Fig. 2B; I] comes into direct contact with the second electrode layer [Fig. 2B; E].

However, the instant application's own 'Background of the Invention' discloses that such "a two-layer structure in which a hole transporting layer is stacked on an organic compound layer having both characteristics of an electron transporting layer and a light emission layer" (and which would inherently result in the organic layer coming into direct contact with the second electrode layer) is a basic EL element structural variant of Takayama's "double-hetero structure" (see Page 2, Lines 9-28 of the instant specification). As such, the instant application's own 'Background of the Invention' discloses that the "two-layer structure" and the "double-hetero structure" are well known viable alternatives.

Takayama and the instant application's own 'Background of the Invention' are analogous art because they are from the shared field of structural organic electroluminescent element arrangements for display devices. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any suitable known EL element structure, such as the "two-layer structure" or the "double-hetero structure," because it is within the general skill of a worker in the art to select a known EL element structure on the basis of its suitability and desired characteristics.

Regarding claim 2, Takayama discloses electric fields with at least different polarity to be applied to electrode pair regions [Figs. 1 & 2B;  $e_1$  and  $e_2$ ] adjacent to each other among the plurality of electrode pair regions are varied with a constant time periodicity (see Column 4, Lines 20-65 -- i.e. row-by-row addressing scheme).

Regarding claim 3, Takayama discloses alternating voltages with opposite polarities are applied to electrode pair regions [Figs. 1 & 2B;  $e_1$  and  $e_2$ ] adjacent to each other among the plurality of electrode pair regions (see Column 7, Lines 5-12 -- wherein each adjacent pair of EL elements  $e_1$  and  $e_2$  are coupled with opposite polarities).

Regarding claim 4, Takayama discloses at least the first electrode layer [Fig. 2B; 2] includes a plurality of electrodes in one of a dot-like form [Fig. 2B; 2 & 2'] and a stripe-like form [Fig. 2A;  $W_1$ ] (see Column 4, Lines 3-14).

Regarding claim 5, Takayama discloses the second electrode layer [Fig. 2B; E] includes a plurality of stripe-like electrodes [Fig. 2A; W<sub>2</sub>] positioned in parallel (see Fig. 2B; i.e. parallel in the substrate 1 plane) to the plurality of stripe-like electrodes [Fig. 2A; W<sub>1</sub>] included in the first electrode layer [Fig. 2B; 2] (see Fig. 2A; Column 3, Line 61 - Column 4, Line 14).

Regarding claim 6, Takayama discloses the second electrode layer [Fig. 2B; E] includes a plurality of stripe-like electrodes [Fig. 2A; W<sub>2</sub>] arranged to intersect (see Fig. 2A) the plurality of stripe-like electrodes [Fig. 2A; W<sub>1</sub>] included in the first electrode layer [Fig. 2B; 2] (see Column 3, Line 61 - Column 4, Line 14).

Regarding claim 7, Takayama discloses a first group of electrodes [Fig. 5; e<sub>1</sub> cathodes] including every other electrode [Fig. 5; at EL<sub>11</sub> and EL<sub>13</sub>, for instance] are electrically connected [Fig. 5; via Row 1] to each other, and a second group of electrodes [Fig. 5; e<sub>2</sub> cathodes] that remain beside the first group of electrodes [Fig. 5; e<sub>1</sub> cathodes] are electrically connected [Fig. 5; via Column 1] to each other in the first electrode layer [Fig. 2B; 2] (see Column 3, Line 61 - Column 4, Line 14).

Regarding claims 8 and 9, Takayama discloses a first group of electrodes [Fig. 5; e<sub>2</sub> anodes] including every other electrode [Fig. 5; at EL<sub>11</sub> and EL<sub>13</sub>, for instance] are electrically connected [Fig. 5; via Row 1] to each other, and a second group of electrodes [Fig. 5; e<sub>1</sub> anodes] that remain beside the first group of electrodes [Fig. 5; e<sub>2</sub> anodes] are electrically connected [Fig.

Art Unit: 2629

5; via Column 1] to each other in the second electrode layer [Fig. 2B; E] (see Column 3, Line 61 - Column 4, Line 14).

Regarding independent claim 14, this claim is rejected by the reasoning applied in the above rejection of claim 10.

Regarding claims 16 and 18, Takayama discloses an electron transport layer [Fig. 2B; E] formed between the second electrode layer [Fig. 2B; E] and the light emission layer [Fig. 2B; I]. Takayama does not explicitly refer to the electron transport layer [Fig. 2B; E] as an "insulation layer." However even if arguably one having ordinary skill in the art at the time the invention were to consider Takayama's electron transport layer [Fig. 2B; E] to be an "insulation layer," as explained above in the rejection of claim 10, the instant application's own 'Background of the Invention' discloses that the "two-layer structure" (which provides no such "insulation layer" between the second electrode layer and the light emission layer) and the "double-hetero structure" are well known viable EL element structure alternatives.

Regarding claims 29 and 30, Takayama discloses a common electrode [Fig. 1; Column 1] drive pulse [i.e. "-a" for time  $t_1 + t_2$ ] applied to the second electrode layer [Fig. 2B; E] is twice as long (i.e.  $t_1 + t_2$ , compared to just  $t_1$ ) as a segment electrode [Fig. 1; Row 1] drive pulse [i.e. "v" for time  $t_1$  only] applied to the first electrode [Fig. 2B; 2] (see Column 4, Lines 37-58).



***Response to Arguments***

6. Applicants' arguments (see Page 7 of the "*Amendment After Final*" filed 6 February 2006) with respect to the rejection of claims 29 and 30 under 35 U.S.C. 112, first paragraph have been fully considered and are persuasive. Therefore, this particular rejection has been withdrawn.

7. Applicants' arguments (see Pages 8-10 of the "*Amendment After Final*" filed 6 February 2006) with respect to claims 2-10, 14, 16, 18, 29, and 30 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. The prior/related art made of record and not relied upon is considered pertinent to applicants' disclosure. Imai (US 6,369,785 B1), Hashimoto et al (US 6,295,043 B1), Bock et al (US 6,278,417 B1), Hashimoto et al (US 6,072,457 A), Kuribayashi et al (US 6,016,037 A), Hosokawa et al (US 5,891,554 A), Utsugi (US 5,837,391 A), Wu et al (US 5,756,147 A), Tang et al (US 5,552,678 A), and Chang (US 4,035,774 A) are cited to further evidence the state of the art pertaining to organic electroluminescent emission displays and methods of driving the same.

Art Unit: 2629

The applicants are hereby notified that the examiner's art unit has recently changed from Art Unit 2673 to **Art Unit 2629**, please direct all future correspondence accordingly. Thank you.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.

29 March 2006